What is claimed is:

1. A speech detection method in a noise environment, the method comprising the steps of:

training basis functions of speech signals and basis functions of noise signals according to a predetermined learning rule;

adapting the basis functions of noise signals to the present environment by using the characteristic of noise signals, which are input into a mike;

extracting determination information for detection speech activation from the basis functions of speech signals and the basis functions of noise signals; and

detecting a speech starting point and a speech ending point of mike signals, which come into a speech recognition unit, from the determination information.

2. The method of claim 1, wherein the predetermined learning rule is independent component analysis (ICA).

3. The method of claim 1, wherein the step of extracting determination information comprises the steps of:

estimating speech and noise generation coefficients from the basis functions of noise signals and the basis functions of speech signals;

computing values of likelihood of speech signals and noise signals from the speech and noise generation coefficients; and

computing speech activation-determining information from a difference between the likelihood of speech signals and the value of the likelihood of noise signals.

4. The method of claim 3, wherein the likelihood of speech signals is computed using Equation;

$$\log p\langle x|\theta\rangle = \log p(s) - \log(\det|\mathbf{A}_s|),$$

where **x** is a mike signal, Θ is a parameter, **s** is speech, and A_s is a mixing matrix having speech basis function information.

5. The method of claim 1, wherein the determination information for

detecting a speech starting point is a value in which a difference between the log-likelihood of speech signals and the log-likelihood of noise signals is normalized with respect to the difference between the log-likelihood of speech signals and the log-likelihood of noise signals at the initial non-activated speech signal.

6. The method of claim 1, wherein a value in which a difference between the log-likelihood of speech signals and the log-likelihood of noise signals is normalized with respect to the difference between the log-likelihood of speech signals and the log-likelihood of noise signals at the initial non-activated speech signal, and the log-likelihood of noise signals is used as the determination information for detecting a speech starting point.

7. The method of claim 1, wherein the determination information for detecting a speech ending point is a value in which the width of variation in a difference between the log-likelihood of speech signals and the log-likelihood of noise signals for a predetermined duration is normalized with respect to the difference between the log-likelihood of speech signals and the log-likelihood of noise signals at the initial non-activated speech signal.

8. The method of claim 1, wherein mike signals are input into a speech recognition unit in an initial mute state having noise, the state is moved into a starting point standby state when a speech starting point-determining information is greater than a first threshold value, the state is moved into a speech activation state when the speech starting point-determining information is greater than the first threshold value for a predetermined duration, the state is returned to the initial mute state when the speech starting point-determining information is not greater than the first threshold value for a predetermined duration, the state is moved into a speech ending point standby state when a speech ending point-determining information is smaller than a second threshold value in the speech activation state, the state is moved into the initial mute state when the state stays in the speech ending point standby state for more than a predetermined duration, and the state is returned to the speech activation the speech ending point-determining information is not smaller

than the second threshold value for a predetermined duration, in the step of detecting a speech starting point and a speech ending point.

9. The method of claim 8, wherein the first and second threshold values are determined according to the circumstance of the present noise.

10. A speech detection apparatus for detecting a speech boundary in a noise environment, the apparatus comprising:

a learning network means, which trains basis functions of speech signals and basis functions of noise signals according to a predetermined learning rule and adapts the basis functions of noise signals to the present environment by using the characteristic of noise signals, which input into a mike;

a determination information-extracting means, which extracts determination information of the mike signal from the basis functions of speech signals and the basis functions of noise signals; and

a speech boundary-determining means, which detects a speech starting point and a speech ending point of mike signals, which are input into a speech recognition unit, from the determination information of the mike signal.

11. The apparatus of claim 10, wherein the determination information-extracting means comprises:

a speech basis function coefficient-extracting module, which estimates a speech generation coefficient from the basis functions of speech signals;

a noise basis function coefficient-extracting module, which estimates a noise generation coefficient from the basis functions of noise signals;

a speech likelihood-computing module, which computes the likelihood of speech signals from the speech generation coefficient;

a noise likelihood-computing module, which computes the likelihood of noise signals from the noise generation coefficient; and

a determination information-computing module, which computes speech determination information according to a difference between the likelihood of speech signals and the likelihood of noise signals.

12. A computer readable medium in a computer system having a processor, including a program comprising steps of:

previously training basis functions of speech signals and basis functions of noise signals according to a predetermined learning rule;

adapting the basis functions of noise signals to the present environment by using the characteristic of noise signals, which are input into a mike;

extracting determination information of mike signal from the basis functions of speech signals and the basis functions of noise signals; and

detecting a speech starting point and a speech ending point of mike signals, which are input into a speech recognition unit, from the determination information.